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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,790

12/08/2003

Kia Silverbrook

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8937

24011

7590

09/28/2006

SILVERBROOK RESEARCH PTY LTD  
393 DARLING STREET  
BALMAIN, NSW 2041  
AUSTRALIA

EXAMINER

MRUK, GEOFFREY S

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/728,790

Applicant(s)

SILVERBROOK, KIA

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 9-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 9-11, 13-16 and 20-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 7, 12, 17, 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/112,767.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/29/06</u>   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugitani et al. (US 4,611,219) in view of Chiang et al. (US 5,508,236).

With respect to claim 1, Sugitani discloses an ink jet printhead (Fig. 1) comprising:

- a plurality of nozzles (Fig. 1, elements 8-3, 9-3) formed in a nozzle plate (Fig. 1, element 14);
- a bubble forming chamber (Fig. 1, elements 8-1, 9-1) corresponding to each of the nozzles respectively (Column 4, lines 1-6), the bubble forming chambers adapted to hold bubble forming liquid and having sidewalls formed of ceramic material (Column 3, lines 22-25) extending between the nozzle plate and an underlying substrate (Fig. 1, element 1) such that each of the chambers have a circular cross section (Column 3, lines 35-39), the side walls being formed from a ceramic material (Column 3, lines 22-25) and,
- at least one heater element (Fig. 1, element 2) disposed in each of the bubble forming chambers respectively, the heater elements configured for thermal contact with the bubble forming liquid; such that,

- heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element (Column 2, lines 47-51); wherein,
- the sidewalls of each of the bubble forming chambers are integrally formed with the nozzle plate (Column 2, line 60 - Column 3, line 17) .

With respect to claim 6, Sugitani discloses the ejectable liquid is the same as the bubble forming liquid (Column 4, lines 1-6).

With respect to claim 7, Sugitani discloses the printhead is a pagewidth printhead (Column 7, lines 56-63).

With respect to claim 12, Sugitani discloses a printer system (Column 1, lines 6-10) which incorporates a printhead (Fig. 1), the printhead comprising:

- a plurality of nozzles (Fig. 1, elements 8-3, 9-3);
- a bubble forming chamber (Fig. 1, elements 8-1, 9-1) corresponding to each of the nozzles respectively (Column 4, lines 1-6), the bubble forming chambers adapted to hold bubble forming liquid and having sidewalls formed of ceramic material (Column 3, lines 22-25) extending between the nozzle plate and an underlying substrate (Fig. 1, element 1) such that each of the chambers have a circular cross section (Column 3, lines 35-39), the side walls being formed from a ceramic material (Column 3, lines 22-25) and,

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- at least one heater element (Fig. 1, element 2) disposed in each of the bubble forming chambers respectively, the heater elements configured for thermal contact with the bubble forming liquid; such that,
- heating the heater element to a temperature above the boiling point of the bubble forming liquid forms a gas bubble that causes the ejection of a drop of an ejectable liquid through the nozzle corresponding to that heater element (Column 2, lines 47-51); wherein,
- the sidewalls of each of the bubble forming chambers are integrally formed with the nozzle plate (Column 2, line 60 - Column 3, line 17).

With respect to claim 17, Sugitani discloses the ejectable liquid is the same as the bubble forming liquid (Column 4, lines 1-6).

With respect to claim 18, Sugitani discloses the printhead is a pagewidth printhead (Column 7, lines 56-63).

However, Sugitani fails to disclose the ceramic material is an amorphous ceramic material.

Chiang discloses a ceramic glass composition where the ceramic material is amorphous (Column 1, lines 49-55).

At the time of the invention, it would have been obvious to use the ceramic glass composition disclosed by Chiang in the liquid-jetting head of Sugitani. The motivation for doing so would have been "an inexpensive ceramic exhibiting improved strength, hardness, and chemical and mechanical resistance" (Column 1, lines 38-41).

***Response to Arguments***

Applicant's arguments filed 29 June 2006 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Fig. 17, element 6) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Second, the applicant's argument that "The Chiang reference fails to disclose the benefits of a non-crystalline structure for use in a printhead chamber or indeed any cyclic load environment. The material properties disclosed at column 1 do not mention the fatigue resistance qualities employed in the present invention", is not persuasive. As stated in the final action rejection, Sugitani fails to disclose the ceramic material is an amorphous ceramic material. Chiang discloses an amorphous ceramic composition. Thus, one of ordinary skill in the art could refer to the Chiang reference for an amorphous ceramic composition, thereby utilizing the improved material properties of amorphous ceramic material for the liquid-jetting head of Sugitani.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM  
9/19/2006

GM

  
**STEPHEN MEIER**  
**SUPERVISORY PATENT EXAMINER**